AMPROBE®

# IR-450

## Infrared Thermometer / Laser Pointer / Flashlight

# Users Manual

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# IR-450

## Infrared Thermometer / Laser Pointer / Flashlight

English

## Users Manual

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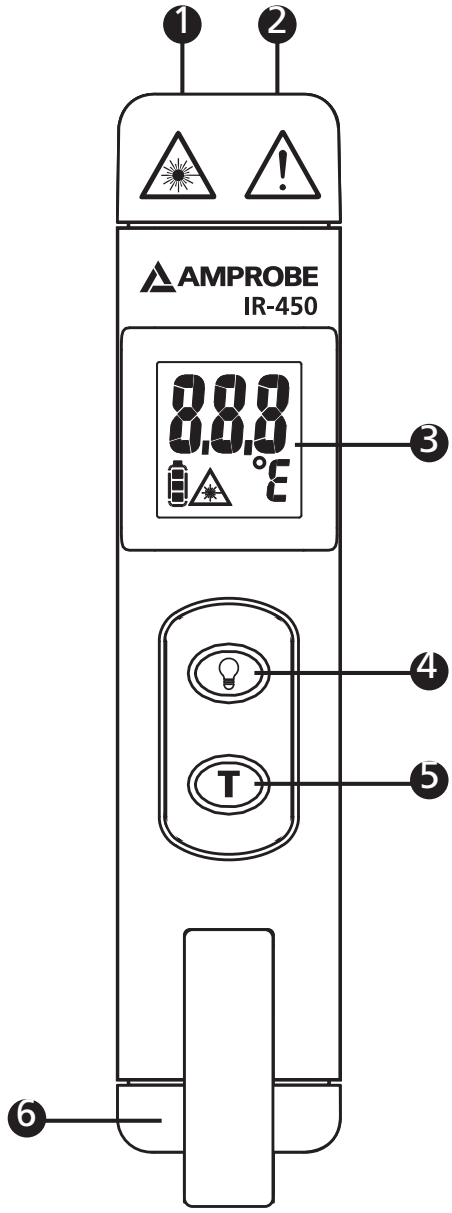
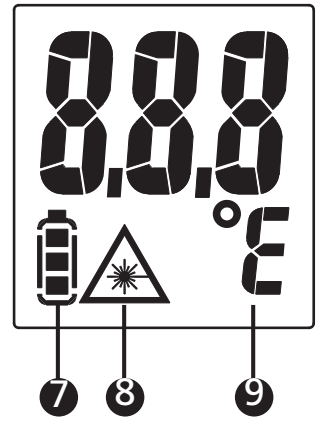
**Limited Warranty and Limitation of Liability**
Your Amprobe product will be free from defects in material and workmanship for one year from the date of purchase, unless local laws require otherwise. This warranty does not cover fuses, disposable batteries or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Amprobe's behalf. To obtain service during the warranty period, return the product with proof of purchase to an authorized Amprobe Service Center or to an Amprobe dealer or distributor. See Repair Section for details. THIS WARRANTY IS YOUR ONLY REMEDY. ALL OTHER WARRANTIES - WHETHER EXPRESS, IMPLIED OR STAUTORY - INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, ARE HEREBY DISCLAIMED. MANUFACTURER SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

**Repair**
All returned for warranty or non-warranty repair or for calibration should be accompanied by the following: your name, company's name, address, telephone number, and proof of purchase. Additionally, please include a brief description of the problem or the service requested and include the test leads with the meter. Non-warranty repair or replacement charges should be remitted in the form of a check, a money order, credit card with expiration date, or a purchase order made payable to Amprobe®.

**In-Warranty Repairs and Replacement – All Countries**
Please read the warranty statement and check your battery before requesting repair. During the warranty, period any defective test tool can be returned to your Amprobe® distributor for an exchange for the same or like product. Please check the "Where to Buy" section on www.amprobe.com for a list of distributors near you. Additionally, in the United States and Canada In-Warranty repair and replacement units can also be sent to a Amprobe® Service Center (see address next page).

# IR-450 Infrared Thermometer / Laser Pointer / Flashlight




1) Laser
2) Flash light
3) Display
4) Flashlight button
5) On button / Test button
6) Battery cover
7) Battery indicator
8) Laser indicator
9) °F / °C

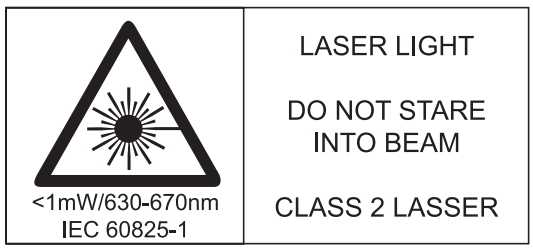
## CONTENTS

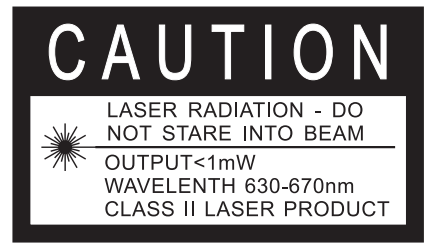
**SYMBOLS** ..... 1
**UNPACKING AND INSPECTION** ..... 2
**INTRODUCTION** ..... 2
**OPERATING INSTRUCTIONS** ..... 3
Power On / Off ..... 3
Auto Power Off ..... 3
Auto Hold ..... 3
Operating The Unit ..... 3
Taking Temperature Measurement ..... 3
°F / °C Selection ..... 4
Distance & Spot Size ..... 4
Reminders ..... 5
Emissivity ..... 7
**SPECIFICATION** ..... 7
**TROUBLE SHOOTING** ..... 8
**MAINTENANCE AND REPAIR** ..... 9
**BATTERY REPLACEMENT** ..... 10

## SYMBOLS

| | |
|---|---|
| ⚠ | Caution! Refer to the explanation in this Manual |
| | Laser light: Do not stare into laser beam |
| | Battery |
| | Conform to relevant Australian standards |
| CE | Complies with European Directives |
| | Do not dispose of this product as unsorted municipal waste. Contact a qualified recycler |

## ⚠*Safety Information*




## ⚠*Warning*

- ***Do not stare into laser beam.***
- ***Do not point laser directly at eye or indirectly off reflective surfaces.***
- ***For use by competent persons only.***
- ***Do not leave the unit on or near objects of high temperature.***
- ***Verify the Tester's operation by measuring on a known source. Do not use the Tester if it operates abnormally.***
- ***Do not operate the Tester around explosive gas, vapor, or dust.***
- ***The Tester is intended for indoor use only.***
- ***Use the Tester only as specifed in the users manual or the protection by the Tester might be impaired.***

### ⚠*Cautions*

***The unit should be protected from the following,***

- ***EMF (electro-magnetic fields) from arc welders and induction heaters***
- ***Static electricity***
- ***Thermal shock (caused by large or abrupt ambient temperature changes - allow 30 minutes for unit to stabilize before use)***

## UNPACKING AND INSPECTION

Your shipping carton should include:

1 IR-450
1 1.5V AAA alkaline battery (installed)
1 Manual

If any of the items are damaged or missing, return the complete package to the place of purchase for an exchange.

## INTRODUCTION

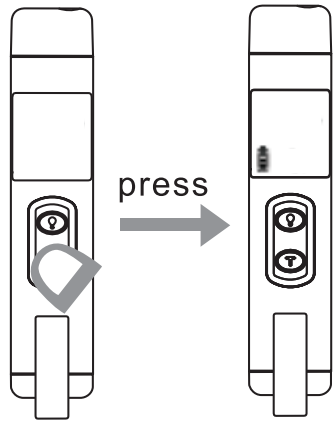
A must-have tool for everyday applications, the IR-450 is a 3-in-1 tool that verifies temperature, is used as a laser pointer and illuminates dark work spaces with a bright LED flashlight. Compact and easy to use - just aim, press the button, and read surface temperatures in less than a second. You can safely measure surface temperatures of hot, hazardous, or hard-to-reach objects without contact.

### Features

- Infrared temperature measurement with laser pointer
- Holds temperature reading for 10 seconds
- Ultra white LED flashlight
- Selectable °F / °C temperature measurements
- Pocket clip

## OPERATING INSTRUCTIONS

### Power On / Off




### Auto Power Off

The IR-450 will power down after not being used for 3 minutes.

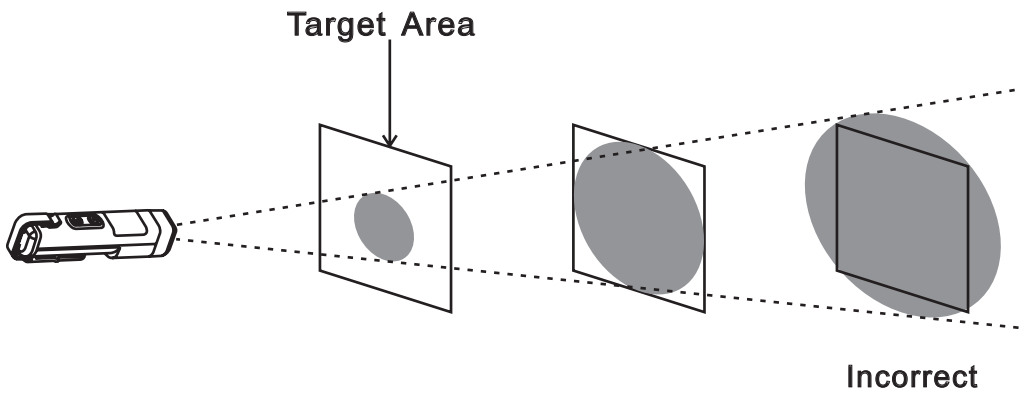
### Auto Hold

The unit will hold the reading for 10 seconds after the on button is pressed.

### Operating the Unit

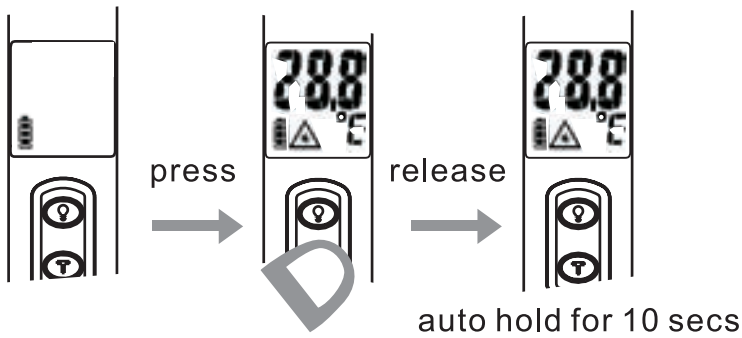
To measure temperature, point unit at an object and press the Test button. Be sure to consider distance-to-spot size ratio and your distance from the measured object. The IR-450 is equipped with a laser. Use the laser only for aiming. See “Taking Temperature Measurement”.

### Taking Temperature Measurement

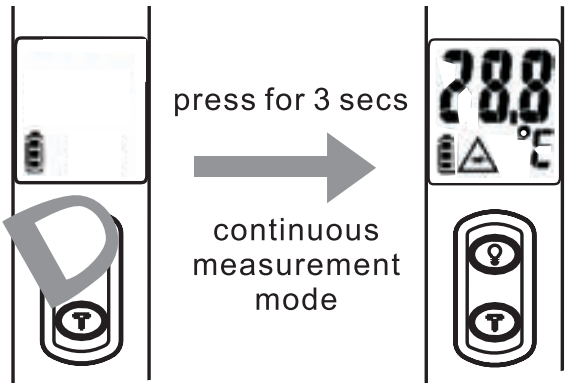


Make sure that the target is larger than the unit's spot size. The smaller the target, the closer you should be to it. The minimum measurement area is 3.75cm (1.5in) diameter.

Press the (T) key, and the unit will show the temperature of the target surface. Then release the (T) key, and the LCD will hold the reading for 10 seconds.




Press the (light) key for 3 seconds, the unit will turn into the IR temperature continuous measurement mode.

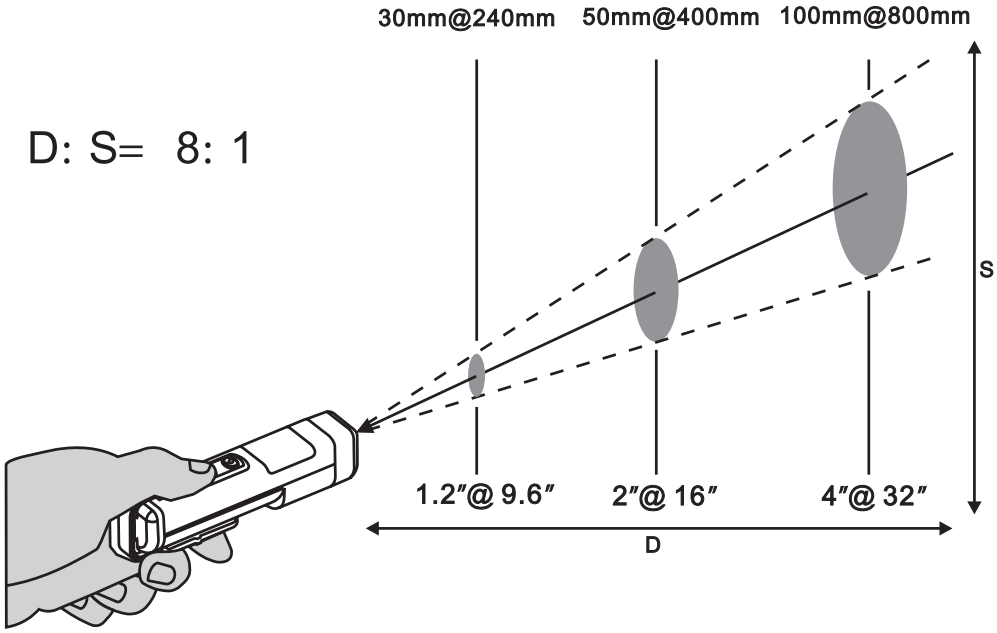



## °F / °C Temperature Selection

Press the Test button and the Flashlight button for 2 seconds at the same time for switching between Fahrenheit and Celsius.

## Distance and Spot Size

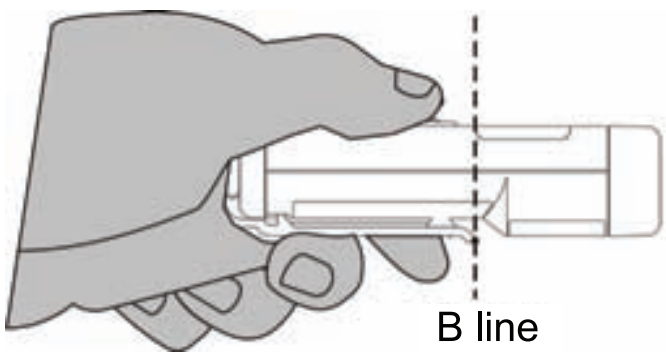
As the distance (D) from the object increases, the spot size (S) of the area measured by the unit becomes larger.




Use the unit at around 30cm to get the best measurement accuracy.

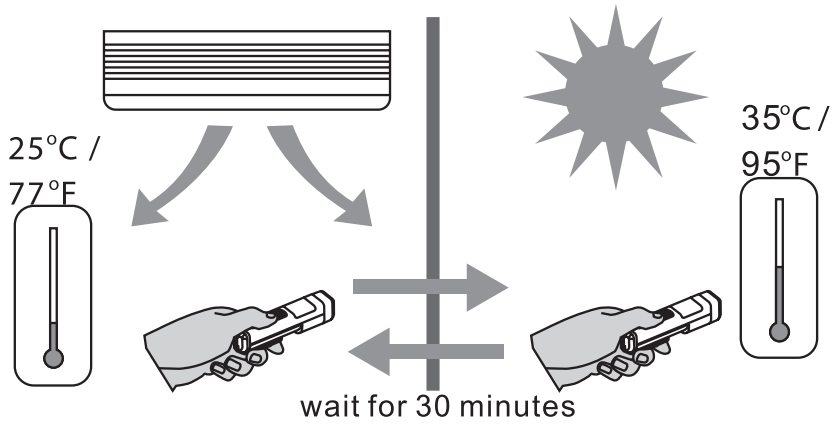
At longer distances, the target area shall be larger than the distance divided by 8.

Please do not put the fingers on the housing for a long period of time and cross the “B line” to prevent thermo effect interference from measuring accuracy.

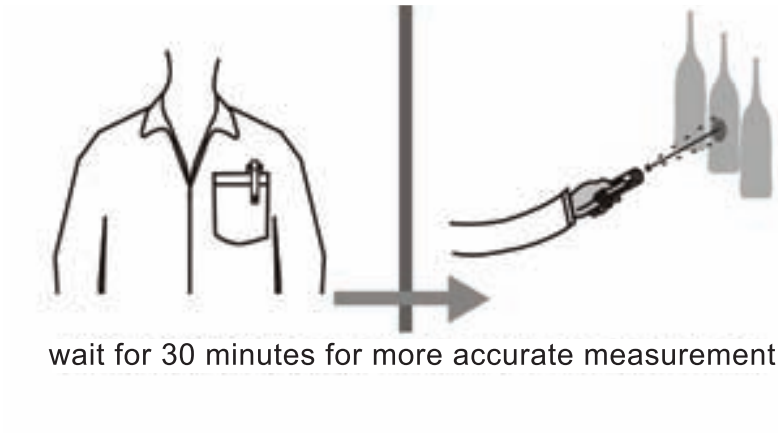



## Reminders

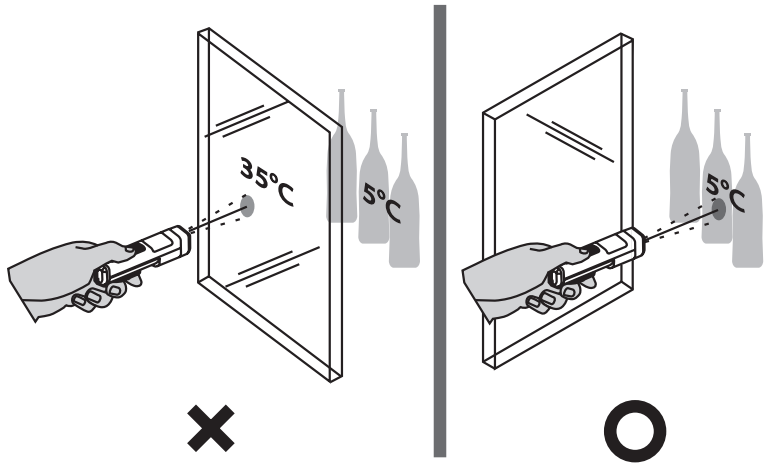
1. Changes of surrounding ambient temperatures can result in inaccurate readings. Allow time for the unit to adapt to the change temperatures before use. Specified accuracy applies after 30 minutes when the Tester adjusts to different environmental temperatures..




Allow time for the unit to adapt to the change of ambient temperatures from the user's pocket to environmental ambient.




2. The unit cannot take measurements through transparent surfaces such as glass. Remove the barrier between the unit and the target surface.



3. Not recommended for use in measuring shiny or polished metal surfaces (stainless steel, aluminum, etc.). See Emissivity.
4. Steam, dust, smoke, etc., can prevent accurate measurement by obstructing the unit's optics

## Emissivity

Most organic materials and painted or oxidized surfaces have an emissivity of 0.95 (pre-set in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate, cover the surface to be measured with masking tape or flat black paint. Allow time for the tape to reach the same temperature as the material underneath it. Measure the temperature of the tape or painted surface.

## SPECIFICATION

| | |
|---|---|
| **Temperature Range** | -30°C to 500°C (-22°F to 932°F) |
| **Accuracy at 23°C ±2°C <80%RH** | -30°C to 0°C (-22°F to 32°F): ±2°C (±4°F)<br>1°C to 10°C (34°F to 50°F): ±1.5°C (±3°F)<br>11°C to 40°C (52°F to 104°F): ±1°C (±2°F)<br>41°C to 500°C (106°F to 932°F): ±1.5°C (±3°F) or ±1.5% of reading, whichever is greater. |
| **Best display Resolution** | 0.5°F / 0.2°C |
| **Response Time** | 0.5 s |
| **Wavelength** | 630nm to 670nm |
| **Spectral Response** | 6.5μm to 18μm |
| **Emissivity** | E=0.95 |
| **D:S** | 8:1(calculated at 80% energy) |

| | |
|---|---|
| **Repeatability** | ±1°C or ±0.5% of reading, whichever is greater. |
| **Display Hold** | 10 s |
| **Electrical Supply** | Internally powered by 1 x AAA 1.5 Alkaline, LR03 battery |
| **Weight** | Approx. 50g (0.11lb) |
| **Dimensions (HxWxD)** | 100 x 20 x 29mm (3.94 x 0.79 x 1.14in) |
| **Storage Temperature** | -20°C to 60°C (without battery) |

## CE Certification

This instrument conforms to the following standards:

- EN 61326-1 Electromagnetic Emissions and Susceptibility
- EN 61010-1 General Safety
- EN 60825-1 Laser Safety

## Environmental Conditions

- Indoor use
- Operating altitude: up to 2000m (6562 ft)
- Pollution degree: 2
- Temperature 23°C ± 2°C
- Humidity < 80% RH

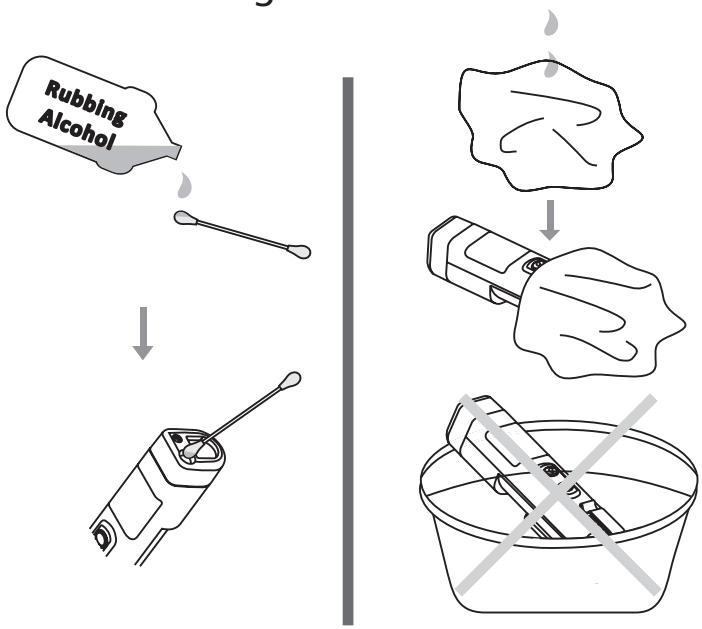
## TROUBLESHOOTING

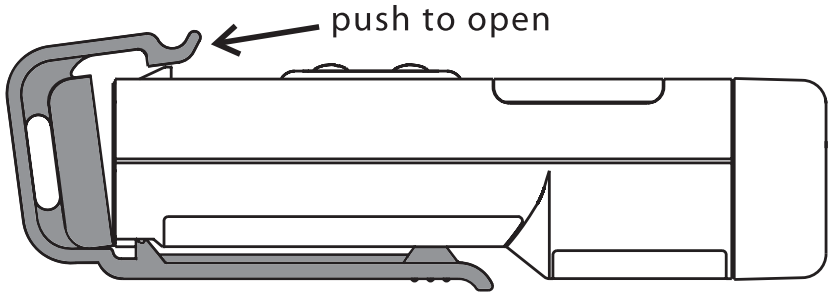
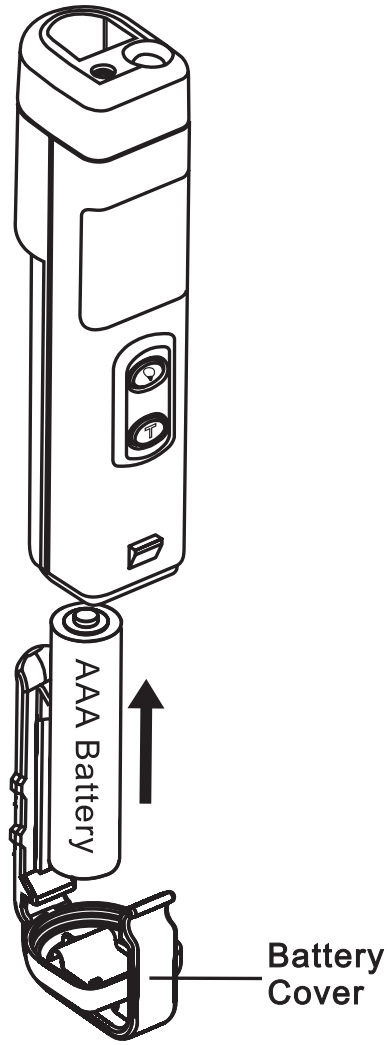
| Code | Problem | Action |
|---|---|---|
| Battery icon appears | Possible low battery | Check and/or replace battery |
| Blank display | Possible dead battery | Check and/or replace battery |
| Laser doesn‘t work | Low or dead battery | Replace battery |

## MAINTENANCE AND REPAIR

Lens Cleaning: Blow off loose particles using clean compressed air. Gently brush remaining debris away with a brush. Carefully wipe the surface with a moist cotton swab. The swab may be moistened with water or rubbing alcohol.
NOTE: DO NOT use solvents to clean the plastic lens.
Case Cleaning: Use soap and water on a damp sponge or soft cloth.

**NOTE:** DO NOT submerge the unit in water.



## BATTERY REPLACEMENT

Please replace the battery when “Battery indicator” is flashing on display.
When battery is replaced / installed, the unit will go into standby mode automatically.